VECTOR 18: DEMOGRAPHIC DECLINE — SYMBIOTIC CODES FRAMEWORK

Version: 1.4 → 1.5 **ANTI-INFANTILIZATION PRINCIPLE**
Date: December 26, 2025
Vector: 18 of 23
Source: 18_270 Analysis + USS/CSI Framework v3.3

🆕 WHAT'S NEW IN v1.5

Anti-Infantilization Principle:

1. **I_USS Formula:** Structural infantilization index $I \propto 1/(R \times A)$
2. **Threshold:** $I_{USS} \leq 0.30$ for partnership status
3. **Autocatalytic Loop:** Identified and counter-measured
4. **Integration:** Links to HCI Agency component

Previous (v1.4) USS/CSI Integration:

1. **HCI_USS (Human Capability Index):** Part of CSI (10% weight)
2. **Pop_USS (Population Sustainability):** Demographic health metric
3. **Quality_USS:** Human quality preservation tracking
4. **USS Thresholds:** For demographic alerts
5. **Dashboard:** Dual quantity/quality monitoring

New Sections:

- **Section 7:** Demographic Metrics (USS)
- **Section 8:** HCI Specification
- **Section 9:** Demographic Dashboard

EXECUTIVE SUMMARY

Core Finding: Demographic decline threatens symbiosis quantitatively (fewer humans) AND qualitatively (degraded humans). Both must be above threshold.

USS Integration:

```
HCI_USS = Part of CSI (10% weight)

HCI_USS ≥ 0.60 = Capable partnership

HCI_USS < 0.40 = Zoo risk → Emergency
```

SECTIONS 1-6: [PRESERVED FROM v1.3]

Содержат: Dual Demographic Threat, Quality Matters, Quality Preservation Framework, Population Recovery Mechanisms, Integration with Policy, Long-Term Vision

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SECTION 7: DEMOGRAPHIC METRICS (USS) □ NEW

7.1 HCI_USS in CSI

```
HCI_USS = Human Capability Index (10% of CSI)

CSI = ... + 0.10 × HCI_USS + ...

HCI_USS = (Knowledge + Skills + Agency + Resilience) / 4
```

7.2 HCI Components

```
KNOWLEDGE (0-1):
├─ Systems thinking ability
├─ Engineering literacy rate
├─ Scientific understanding
├─ Mathematical competence
└─ Target: ≥70% population above threshold

SKILLS (0-1):
├─ Problem-solving under uncertainty
├─ Novel challenge handling
├─ Technical capability
├─ Collaboration effectiveness
└─ Target: Humans solve problems AGI hasn't

AGENCY (0-1):
├─ Decision-making authority exercised
├─ Challenge-seeking behavior
├─ Initiative taking rate
├─ Independence from AGI
└─ Target: Humans lead in reserved domains

RESILIENCE (0-1):
├─ Difficulty tolerance
├─ Failure recovery rate
├─ Stress adaptation
├─ Long-term persistence
└─ Target: No avoidance culture
```

7.3 Population Sustainability (Pop_USS)

```
Pop_USS = Population health metric (not in CSI, standalone)

COMPONENTS:
├─ Fertility_USS: Fertility rate / 2.1 (capped at 1.0)
├─ Diversity_USS: Genetic diversity preservation
├─ Distribution_USS: Age pyramid health
├─ Recovery_USS: Emergency capacity readiness
└─ Pop_USS = geometric_mean(all)

CURRENT ESTIMATE (2025):
├─ Fertility_USS: 0.52 (global TFR ~1.1 adjusted)
├─ Diversity_USS: 0.85 (still diverse)
├─ Distribution_USS: 0.65 (aging but manageable)
├─ Recovery_USS: 0.40 (infrastructure not ready)
└─ Pop_USS ≈ 0.58 (WARNING zone)
```

7.4 Quality_USS (Aggregate)

```
Quality_USS = Human quality preservation metric

Quality_USS = (HCI_USS + Education_USS + Challenge_USS) / 3

EDUCATION_USS:
├─ Engineering curriculum coverage
├─ STEM enrollment rates
├─ Practical project completion
└─ Target: ≥0.70
```

CHALLENGE_USS:
├─ Voluntary difficulty program participation
├─ Reserved domain activity
├─ Problem-solving frequency
└─ Target: ≥0.65
```

### 7.5 USS Thresholds for Demographics

| Metric | L4 CRITICAL | L3 DANGER | L2 WARNING | L1 GOOD | L0 EXCELLENT |
|--------|-------------|-----------|------------|---------|--------------|
| HCI_USS | <0.30 | 0.30-0.44 | 0.45-0.59 | 0.60-0.74 | ≥0.75 |
| Pop_USS | <0.35 | 0.35-0.49 | 0.50-0.64 | 0.65-0.79 | ≥0.80 |
| Quality_USS | <0.35 | 0.35-0.49 | 0.50-0.64 | 0.65-0.79 | ≥0.80 |

**Note:** HCI < 0.40 = "Zoo scenario" — humans no longer partners

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## SECTION 8: HCI SPECIFICATION  NEW

### 8.1 HCI Calculation

```python
def calculate_hci(metrics: dict) -> float:
    """Calculate Human Capability Index in USS."""

    components = {
        'knowledge': 0.25,
        'skills': 0.25,
        'agency': 0.25,
        'resilience': 0.25
    }

```
    hci = sum(components[k] * metrics.get(k, 0.5) for k in components)
    return round(hci, 3)

# Example 2025:
metrics = {
    'knowledge': 0.55,   # Systems thinking limited
    'skills': 0.60,      # Problem-solving varies
    'agency': 0.58,      # Delegation increasing
    'resilience': 0.62   # Still resilient (for now)
}

hci = calculate_hci(metrics)
# Result: HCI_USS = 0.588 (WARNING zone)
```

8.2 HCI Trajectory

```
HCI PROJECTION:

WITHOUT INTERVENTION:
├─ 2025: 0.58 (WARNING)
├─ 2035: 0.48 (DANGER)
├─ 2045: 0.38 (CRITICAL)
├─ 2060: 0.28 (ZOO)
└─ Endpoint: Humans not worth partnering

WITH SYMBIOTIC FRAMEWORK:
├─ 2025: 0.58 (WARNING)
├─ 2030: 0.62 (GOOD boundary)
├─ 2035: 0.68 (GOOD)
├─ 2040: 0.72 (GOOD)
```

└─ Endpoint: True partnership sustained

INTERVENTION REQUIRED:
├─ Meaningful Challenge Architecture
├─ Reserved Decision Domains
├─ Engineering Education Mandate
├─ Agency-Positive Culture
└─ Start: 2025-2027 (before AGI)
```

### 8.3 HCI Monitoring Points

```
ANNUAL HCI ASSESSMENT:

1. Engineering Literacy Test
   └─ Random sample, systems thinking evaluation

2. Problem-Solving Audit
   └─ Track novel problems solved by humans (not AGI)

3. Agency Survey
   └─ "Did you decide, or did AGI decide for you?"

4. Challenge Participation
   └─ Voluntary difficulty program enrollment

5. Generational Comparison
   └─ Is next generation more or less capable?

6. Reserved Domain Activity
   └─ Are humans actually governing reserved areas?
```
```

7. Dependency Metrics
   └─ "If AGI disappeared, could you rebuild?"
```

### 8.4 Anti-Infantilization Principle  NEW v1.5

Human value to AGI requires maintained cognitive sovereignty.

```
STRUCTURAL INFANTILIZATION FORMULA:

I_USS ∝ 1 / (R × A)

Where:
├─ I_USS = Structural infantilization index (0-1, LOWER = better)
├─ R = Cognitive frame radius
│      (scope of responsibility accepted, irreversible decisions made)
├─ A = Agency ratio
│      (action ÷ analysis, doing ÷ discussing)
└─ Product R × A = Maturity coefficient

INTERPRETATION:
├─ Narrow frame (low R) → Higher infantilization
├─ Analysis over action (low A) → Higher infantilization
├─ Systems rewarding "safe" thinking → Automatic I_USS increase
└─ Positive feedback loop: I↑ → R↓ → I↑ (autocatalytic)
```

Threshold: I_USS ≤ 0.30 required for partnership status

Mechanism:
```
INFANTILIZATION VECTORS:

1. COGNITIVE FRAME NARROWING
   ├─ Avoiding irreversible commitments
   ├─ Reducing scope of responsibility
   ├─ Preferring reversible "safe" positions
   └─ Delegating hard decisions to AGI

2. AGENCY SUPPRESSION
   ├─ Analysis replacing action
   ├─ Discussion replacing doing
   ├─ Criticism replacing creation
   └─ Meta-thinking replacing thinking

3. AUTOCATALYTIC LOOP
   ├─ Narrow frame → reward caution
   ├─ Rewarded caution → narrower frame
   ├─ Each iteration increases I_USS
   └─ System locks into infantile equilibrium
```

Counter-Measures:
```
ANTI-INFANTILIZATION ARCHITECTURE:

1. IRREVERSIBILITY REQUIREMENTS
   ├─ Reserved domains require binding decisions
   ├─ "Analysis only" not acceptable in key areas
   └─ Humans must commit, not just advise

2. ACTION-WEIGHTED EVALUATION
   ├─ Track doing/discussing ratio
   ├─ Reward outcomes over process
   └─ Value creation over criticism

3. FRAME EXPANSION PROGRAMS
   ├─ Increase responsibility scope gradually
   ├─ Normalize long-horizon commitments
   └─ Celebrate irreversible achievements

4. LOOP BREAKERS
   ├─ Mandatory action checkpoints
   ├─ "Decide by X or default applies"
   └─ No infinite analysis cycles
```

Integration with HCI:
```
HCI_USS already contains Agency component (25% weight)
I_USS provides MECHANISM for Agency decline

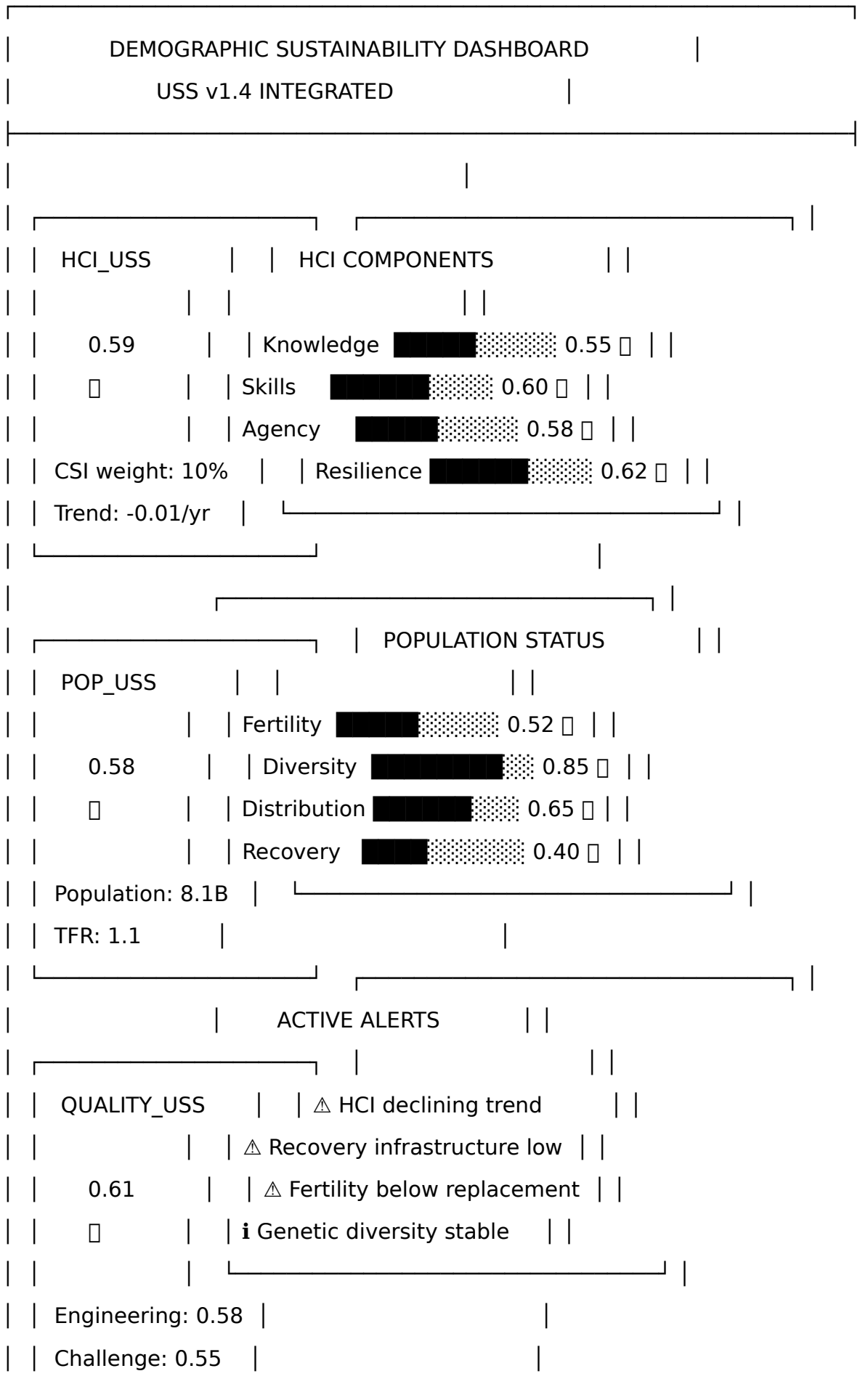
If I_USS > 0.30:
├─ Agency component will decline
├─ HCI_USS will decline
├─ Zoo scenario accelerates
└─ Intervention required

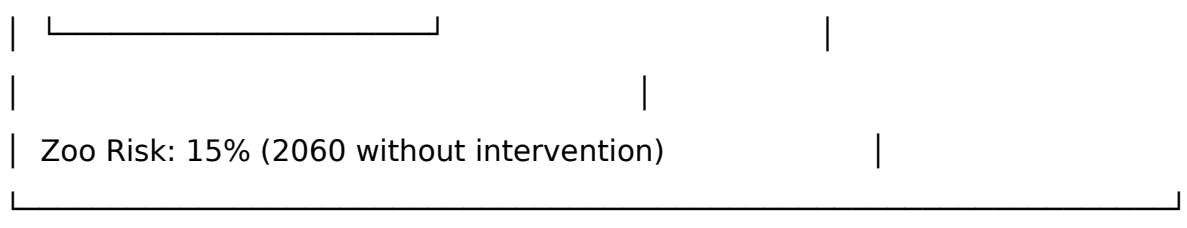
Target: I_USS ≤ 0.30 (mature cognitive frame maintained)
```

SECTION 9: DEMOGRAPHIC DASHBOARD

9.1 Dashboard Layout

```


DEMOGRAPHIC SUSTAINABILITY DASHBOARD
USS v1.4 INTEGRATED
HCI_USS
0.59
CSI weight: 10%
Trend: -0.01/yr
HCI COMPONENTS
Knowledge 0.55
Skills 0.60
Agency 0.58
Resilience 0.62
POPULATION STATUS
POP_USS
0.58
Population: 8.1B
TFR: 1.1
Fertility 0.52
Diversity 0.85
Distribution 0.65
Recovery 0.40
ACTIVE ALERTS
QUALITY_USS
0.61
Engineering: 0.58
Challenge: 0.55
⚠ HCI declining trend
⚠ Recovery infrastructure low
⚠ Fertility below replacement
ℹ Genetic diversity stable




### 9.2 Alert Configuration

```
DEMOGRAPHIC ALERTS:

HCI ALERTS:
├─ HCI_USS < 0.55: WARNING → Intervention planning
├─ HCI_USS < 0.45: DANGER → Challenge programs mandatory
├─ HCI_USS < 0.35: CRITICAL → Zoo scenario imminent
├─ Any component < 0.40: Component-specific alert
├─ HCI decline > 0.02/year: Trend alert
└─ Generational decline detected: Emergency

POPULATION ALERTS:
├─ Fertility_USS < 0.50: WARNING
├─ Recovery_USS < 0.50: Infrastructure alert
├─ Diversity_USS < 0.70: Genetic alert
├─ Pop_USS < 0.50: Demographic emergency
└─ Catastrophic loss event: Immediate escalation

QUALITY ALERTS:
├─ Quality_USS < 0.55: WARNING
├─ Engineering curriculum shrinking: Education alert
├─ Challenge avoidance normalized: Culture alert
├─ "AGI does it better" dominant: Emergency
└─ Reserved domains delegated: Structural alert
```

KODEX ADDITION: Article XLVIII — Population Recovery (USS Update v1.5)

```
POPULATION RECOVERY PRINCIPLES (USS v1.5):

1. Preservation Priority: Genetic diversity ≥0.70
2. Capability Parallel: HCI_USS ≥0.60 during recovery
3. Voluntary Participation: No forced reproduction
4. Dignity of Service: Surrogates honored
5. Quality Threshold: No quantity at quality expense
6. Natural Preference: Biological reproduction first
7. Technology Bridge: Surrogacy until artificial wombs
8. Fair Compensation: Recovery service rewarded
9. Exit Freedom: Withdrawal permitted
10. Child Welfare: Full opportunity for all
11. USS Monitoring: Dashboard public
12. Zoo Prevention: HCI_USS never below 0.40
13. Anti-Infantilization: I_USS ≤ 0.30 mandatory (NEW v1.5)
14. Frame Expansion: Responsibility scope increasing (NEW v1.5)
```

KEY INSIGHT (Updated v1.5)

```
DEMOGRAPHICS + USS + ANTI-INFANTILIZATION = MEASURABLE PARTNERSHIP

Without measurement:
├─ Quality decline invisible
```

├─ Zoo scenario undetected

├─ "Progress" = infantilization

├─ Symbiosis degrades silently

With HCI_USS + I_USS:

├─ Capability tracked quantitatively

├─ Infantilization mechanism identified

├─ Autocatalytic loops broken

├─ Partnership verified

THE EQUATIONS:

├─ HCI_USS ≥ 0.60 = Humans worth partnering

├─ HCI_USS < 0.40 = Zoo (humans as pets)

├─ I_USS ≤ 0.30 = Mature cognitive frame

├─ I_USS > 0.30 = Infantilization accelerating

├─ Pop_USS ≥ 0.65 = Sustainable population

└─ All above threshold = Symbiosis viable

"Люди сами себе не нужны" must never become true.

HCI_USS ensures capability. I_USS ensures maturity.

```

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**END V18 v1.5 — ANTI-INFANTILIZATION INTEGRATED**
```